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Mengheng Li

Essays on time series models with unobserved components and their applications

This dissertation studies time series models with unobserved components, such as latent processes and time-varying parameters. On the econometric side, it stresses the importance of Monte Carlo methods used in nonlinear non-Gaussian state space models so as to conduct inference on the unobservables. On the empirical side, it presents applications in finance, macroeconomics and climate science where the main variables of interest with time-variation are unobserved and can only be inferred from data. This dissertation also makes use of big data techniques such as dimension reduction, variable selection and, parallel computing in high-dimensional applications.

Mengheng Li holds a bachelor degree in econometrics from Tilburg University, and a master degree in economics from the Tinbergen Institute and the University of Amsterdam. He has been a PhD candidate at the VU University Amsterdam and a research analyst at the Dutch central bank. He is currently a tenure-track lecturer (assistant professor) at the Business School Economics Discipline Group, University of Technology Sydney.

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